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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,598	10/07/2005	Russell L. Kreeger	62732A	2419
35503 7590 06/26/2008 Union Carbide Chemicals and Plastics Technology Corporation P.O. Box 1967 Midland, MI 48641-1967				
EXAMINER				
WHITE, EVERETT NMN				
ART UNIT		PAPER NUMBER		
1623				
MAIL DATE		DELIVERY MODE		
06/26/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/552,598

Applicant(s)

KREEGER ET AL.

Examiner

EVERETT WHITE

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-US)
Paper No(s)/Mail Date 1/20/2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

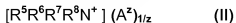
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
2. Claims 1-11, 13, 15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brode et al (US Patent No. 5,407,919).

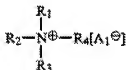
Applicants claim a cellulose ether having from 4,000 to 10,000 anhydroglucose repeat units and being substituted with (a) on the average from 0.0003 to 0.08 moles, per mole of anhydroglucose unit, of a substituent comprising an alkyl or arylalkyl group having from 8 to 24 carbon atoms and (b) a substituent having the formula II



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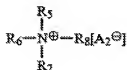
wherein R^5 , R^6 and R^7 each independently are $-CH_3$ or $-C_2H_5$, R^8 is $-CH_2-CHOH-CH_2-$ or $-CH_2CH_2-$; A^{z-} is an anion, and z is 1, 2 or 3. Applicants also claim personal care composition comprising the cellulose ether of Claim 1.

The Brode et al patent discloses cellulose ethers substituted with a cationic substituent and a hydrophobic substituent, which provide enhanced properties when used in personal care compositions (see abstract). The Brode et al patent discloses that the cellulose ethers thereof as including hydroxyethyl cellulose (see column 2, line 20), as having a molecular weight ranging from about 10,000 to 500,000 grams per gram mole (see column 2, lines 25-27), and as having a viscosity that ranges from about 5 to 5,000 centipoise (see column 2, lines 36-37). These above mentioned properties of cellulose ether embraces the hydroxyethyl cellulose, number of anhydroglucose repeating units, viscosity measurement and personal care composition disclosed in instant Claims 1, 2, 6, 11, 17 and 18. The Brode et al patent describes a preferred hydrophobic substituents as having the formula:



wherein each of R_1 and R_2 are $-CH_3$ or C_2H_5 ; R_3 is $CH_2CHOHCH_2$; R_4 is an alkyl or arylalkyl group having about 8 to 18 carbon atoms; and A_1 is a halide ion (see column 2, line 66 to column 3, line 17), which cover the formula requirement described for substituent (a) in instant Claims 7, 11, 15, 17 and 18. The Brode et al patent also describes other hydrophobic substituents that may be used which include those prepared from hydrophobic containing reagents such as glycidyl ethers, e.g., nonylphenylglycidyl ether or dodecylphenyl glycidyl ether, or alpha-olefin epoxides, e.g., 1,2 epoxy hexadecane and there respective chloroalcohols, or alkyl halides, e.g., dodecylbromide, and mixtures thereof, which covers the substituent of step (a) of instant Claim 1 and the description recited for substituent (a) in instant Claims 8 and 9. The Brode et al patent discloses cationic substituents used in their invention that have the formula:

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wherein each of R^5 , R^6 and R^7 is CH_3 or C_2H_5 , R^8 is $\text{CH}_2\text{CHOHCH}_2$ or CH_2CH_2 ; and A_2 is a halide ion (see column 3, lines 37-55). The description of the cationic substituents of the Brode et al patent covers the substituent (b) of formula II of instant Claims 1, 11, 12 and 18. See column 3, lines 61-63 of the Brode et al patent wherein the substitution level of the cationic substituent ranges from about 0.05 to 0.5 gram moles of cationic substituent per gram mole of cellulose ether, which covers part the amount of moles for substituent (b) of instant Claims 5, 11 and 18.

The instantly claimed cellulose ether differs from the cellulose ethers of the Brode et al patent by claiming that the substituent (a) is substituted on the average from 0.0003 to 0.08 moles per mole of anhydroglucose unit, wherein the structurally similar hydrophobic group of the Brode et al patent is greater than 0.11 gram moles per gram mole of cellulose ether.

It is noted that the cellulose ethers of the Brode et al patent are used in personal care compositions, including skin creams, lotions, soaps, shampoos, conditions and the like (see column 4, lines 50-55). Applicants are reminded that molar proportions or ranges of molecular weight cannot be the basis for patentability of subject matter encompassed by the prior art where there is nothing to indicate such proportion or range is critical. *In re Hoeschele* (CCPA 1969) 406 F2d 1403, 160 USPQ 809; *In re Cole* (CCPA 1964) 326 F2d 769, 140 USPQ 230. It is well within the skill of technicians of the instant art to decrease the viscosity of personal care compositions to obtain a desired thickness of the product.

One having ordinary skill in the art would have been motivated to employ the process of the prior art with the expectation of obtaining the desired product because the skilled artisan would have expected the analogous starting materials to react similarly.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of Applicants invention to adjust the viscosity of the cellulose ether of the Brode et al patent by decreasing the amount of the hydrophobic substituent in view of their closely related structures and the resulting expectation of similar cleaning properties.

3. Claims 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brode et al (US Patent No. 5,407,919).

Applicants claim a process for producing the cellulose ether of Claim 1 comprising the step of reacting a cellulose ether having from 4,000 to 10,000 anhydroglucose repeat units with a compound of substituent (a) and a compound of substituent (b).

The Brode et al patent discloses cellulose ethers that are reacted with compounds comprising a hydrophobic substituent and with compounds comprising a cationic substituent, which produces cellulose ethers that provide enhanced properties when used in personal care compositions (see abstract). See Examples 1 and 2 of the Brode et al patent which discloses detail reaction of hydroxyethyl cellulose being reacted with compounds comprising a hydrophobic substituent and with compounds comprising a cationic substituent.

The instantly claimed process for producing cellulose ether differs from the cellulose ether process of the Brode et al patent by claiming that the substituent (a) is substituted on the average from 0.0003 to 0.08 moles per mole of anhydroglucose unit, wherein the structurally similar hydrophobic group of the Brode et al patent is greater than 0.11 gram moles per gram mole of cellulose ether.

It is noted that the cellulose ethers of the Brode et al patent are used in personal care compositions, including skin creams, lotions, soaps, shampoos, conditions and the like (see column 4, lines 50-55). Applicants are reminded that molar proportions or ranges of molecular weight cannot be the basis for patentability of subject matter encompassed by the prior art where there is nothing to indicate such proportion or range is critical. *In re Hoeschele* (CCPA 1969) 406 F2d 1403, 160 USPQ 809; *In re Cole* (CCPA 1964) 326 F2d 769, 140 USPQ 230. It is well within the skill of technicians

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of the instant art to decrease the viscosity of personal care compositions to obtain a desired thickness of the product by reacting a cellulose ether with smaller amounts of substituents.

One having ordinary skill in the art would have been motivated to employ the process of the prior art with the expectation of obtaining the desired product because the skilled artisan would have expected the analogous starting materials to react similarly.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of Applicants invention to adjust the viscosity of the cellulose ether of the Brode et al patent by decreasing the amount of the hydrophobic substituent used in the preparation of the cellulose ether in view of their closely related structures and the resulting expectation of similar cleaning properties.

4. Claims 3, 11, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brode et al (US Patent No. 5,407,919) as applied to Claims 1, 12 and 13 above, and further in view of Partain III et al (US Patent No. 6,372,901).

The information with regard to the rejection of the instantly claimed cellulose ether and process of preparation provided above in the Brode et al patent is incorporated into the current rejection.

Claims 3, 11, 16 and 18 of the instant invention differ from the Brode et al patent by claiming that the cellulose ether thereof, which may be a hydroxyethyl cellulose, comprises on the average 1.0 to 3.0 moles or 1.5 to 2.5 moles of hydroxyethyl groups per mole of anhydroglucose unit.

The Partain et al patent, which discloses polysaccharides with alkyl-aryl hydrophobic groups wherein the polysaccharide may be selected as hydroxyethyl cellulose (see title, column 4, lines 38, 39 and 43-45), shows that polysaccharides having a hydroxyethyl molar substitution (MS) of from about 1.5 to about 6 is well known in the art.

One of ordinary skill in this art would be motivated to combine the teaching of the Brode et al patent with the teaching of the Partain et al patent since both patents

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disclose hydroxyethyl cellulose compositions that modify the rheology or stability of compositions.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the hydroxyethyl cellulose compounds of the Brode et al patent that have hydroxyethyl MS of 1.5 or higher in view of the recognition in the art, as evidenced by the Partain et al patent, that hydroxyethyl cellulose compounds having such hydroxyethyl molar substitution help to provide polysaccharides with increase stability.

Summary

5. All the pending claims are rejected.

Examiner's Telephone Number, Fax Number, and Other Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Everett White whose telephone number is 571-272-0660. The examiner can normally be reached on 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia A. Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Everett White/

Examiner, Art Unit 1623

/Shaojia Anna Jiang, Ph.D./

Supervisory Patent Examiner, Art Unit 1623